

•Appl. No. : 09/552,383
Filed : April 19, 2000

REMARKS

In the Office Action mailed March 25, 2004 (Paper No. 20040318), the Examiner rejected Claims 30-37 and 56-62 under 35 USC §103(a) as being unpatentable over Andricacos et al. (US 6,268,291 B1) in view of the Sandhu et al. (US 5,069,002). In addition, the Examiner further accepted the terminal disclaimer filed on February 26, 2004 with respect to U.S. Pat. No. 6,576,553 B2. By this paper, the Applicant has amended Claims 30 and 56 to distinguish the art of record and respectfully requests reconsideration of the above-captioned application in light of the amendments and remarks contained herein.

The Applicant has amended Claims 30 and 56 to indicate that an aperture is formed in the sacrificial layer, shield layer, and dielectric layer after positioning the shield layer and sacrificial layer on the dielectric layer. Subsequently, a portion of the conductive material and sacrificial layer is removed through CMP, and the CMP process is halted upon detecting the shield layer such that the dielectric layer and the shield layer remain. Not having remnants of the sacrificial layer in the aperture can lower resistivity by filling more of the aperture with the conductive material. In contrast, Andricacos forms an aperture in the stop layer and insulating layer prior to depositing a barrier layer, which leaves remnants of the barrier layer in the aperture after planarization. In column 8, lines 48-50, Andricacos teaches the use of a barrier layer with copper conductors so as to prevent diffusion of copper into the surrounding insulators. This can be detrimental to the reliability and functionality of the conductive material due to a reduced amount of conductive material in the aperture.

Since Andricacos teaches away from the Applicant's claimed invention, there would be no reason to combine Andricacos with Sandhu or any other reference to gain the advantageous results of the Applicant's claimed invention. In fact, to the extent that Sandhu teaches endpoint detection for CMP processing, Sandhu fails to suggest a method of forming the dielectric layer as claimed by the Applicant in Claims 30 and 56. Therefore, the Applicant submits that Claims 30 and 56 as amended are allowable over the art of record.

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SUMMARY

Based upon the foregoing, the Applicant believes that Claims 30 and 56 are allowable over the art of record for the reasons given above. Moreover, the Applicant further submits that Claims 31-37 and 57-62 define additional patentable subject matter and are further allowable due to their respective dependencies on Claims 30 and 56. The Applicant, therefore, believes that the above-captioned application is in condition for allowance and requests the prompt allowance of the same. Should there be any impediment to the prompt allowance of this application that could be resolved by a telephone conference, the Examiner is respectfully requested to call the undersigned at the number shown below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 7/26/04

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